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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/501,813	04/05/2005	Toshio Narita	042393	6606

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EXAMINER

WONG, EDNA

ART UNIT	PAPER NUMBER
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1753

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/30/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

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Office Action Summary	Application No.	Applicant(s)	
	10/501,813	NARITA ET AL.	
	Examiner	Art Unit	
	Edna Wong	1753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 November 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 and 5-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1 and 2 is/are allowed.
- 6) ☒ Claim(s) 3 and 5-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on January 8, 2007 has been entered.

Response to Arguments

This is in response to the Amendment dated November 30, 2006. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 103

Claims **3 and 5-7** have been rejected under 35 U.S.C. 103(a) as being unpatentable over **JP 09-302496** ('496).

The rejection of claims 3 and 5-7 under 35 U.S.C. 103(a) as being unpatentable over JP 09-302496 ('496) has been withdrawn in view of Applicants' amendment.

Response to Amendment

Claim Rejections - 35 USC § 112

Claim 6 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 6

line 4, "said at least one of lithium ion and sodium ion" lacks antecedent basis when dependent upon claim 3.

Claim Rejections - 35 USC § 103

Claims 3 and 5-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 09-302496 ('496) in combination with Wikipedia ("Alkali Metal", pages 1-3).

JP '496 teaches a method for forming a high-Re-content alloy film, said method comprising:

performing an electroplating process (= galvanizing) [page 3, [0022] to [0024]] using an electroplating bath (= plating bath) [page 2, [0013]] which contains an aqueous solution including:

- (i) a perrhenate ion in a concentration of 0.1 to 8.0 mol/L (= 0.01 to 0.6 mol/l of rhenium acid ions) [page 2, [0013]];
- (ii) at least one ion selected from the group consisting of nickel, iron and cobalt ions, in a total concentration of 0.005 to 2.0 mol/L (= 0.005 to 0.04 mol/l of Ni ions and/or Co ions) [page 2, [0013]];

(iii) a Cr (III) ion in a concentration of 0.1 to 4.0 mol/L (0.01-0.8 mol/l Cr(III) ions); and
wherein said electroplating bath has a pH of 0 to 8, and a temperature of 10 to 80°C (page 3, [0022]).

The remainder being at least one of Ni, Fe and Co (= nickel, cobalt, tungsten and molybdenum) [page 2, [0013]].

The electroplating bath contains an organic acid in a concentration of 0.1 to 5.0 equivalents to the concentration of all of said metal ions (= 0.1 to 3 Eq of an organic acid) [pages 2-3 [0018] to [0019]; and claims 4-8].

The electroplating bath contains at least one ion selected from the group consisting of potassium, rubidium, cesium, calcium, strontium and barium ions (= 0.15 mol/l of rhenium acid potassium) [page 3, [0030]].

The electroplating bath contains a chloride ion in a concentration of 0.0001 to 5.0 mol/L (= 0.38 mol/l of chromium chloride) [page 3, [0030]].

The method of JP '496 differs from the instant invention because JP '496 does not disclose the following:

a. Wherein the electroplating bath includes a lithium ion in a total concentration of 0.0001 to 5.0 mol/L, as recited in claim 3.

JP '496 teaches from 0.12 mol/l of sodium molybdate and sodium hydroxide (page 3, [0030]).

Wikipedia teaches that sodium and lithium are alkali metals. The alkali metals provide one of the best examples of group trends in properties in the periodic table, with well characterized homologous behavior down to the group (page 1).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the sodium molybdate and/or sodium hydroxide described by JP '496 to lithium molybdate and/or lithium hydroxide because this would have been functionally equivalent as the alkali metals have well characterized homologous behavior as taught by Wikipedia (page.1).

As to a total concentration of 0.0001 to 5.0 mol/L, the lithium ion concentration is a result-effective variable and one skilled in the art has the skill to calculate the lithium ion concentration that would have determined the success of the desired reaction to occur, e.g., pH, absent evidence to the contrary (MPEP § 2141.03 and § 2144.05(II)(B)).

b. Wherein the high-Re-content alloy film which contains Re in the range of 65 to less than 98% by atomic composition, as recited in claim 3.

JP '496 teaches 0.01 to 0.6 mol/l of rhenium acid ion (page 2, [0013]).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the alloy film described by JP '496 with wherein the high-Re-content alloy film which contains Re in the range of 65 to less than 98% by atomic composition because products of identical chemical composition can not have

mutually exclusive properties (MPEP § 2112.01(II)).

c. Wherein the total concentration of said at least one of lithium ion and sodium ion in said electroplating bath is greater than the total concentration of said at least one ion selected from the group consisting of potassium, rubidium, cesium, calcium, strontium and barium ions, as recited in claim 6.

JP '496 teaches 0.01 to 0.6 mol/l of rhenium acid ions (page 2, [0013]) and 0.15 mol/l of rhenium acid potassium (page 3, [0030]).

JP '496 teaches 0.12 mol/l of sodium molybdate and sodium hydroxide (page 3, [0030]).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the concentrations described by JP '496 with wherein the total concentration of said at least one of lithium ion and sodium ion in said electroplating bath is greater than the total concentration of said at least one ion selected from the group consisting of potassium, rubidium, cesium, calcium, strontium and barium ions because the balance between the organic acid and metallic ions would have controlled the stability in the plating bath of each metallic complex formed, which contributes to the good precipitating balance of each metal as taught by JP '496 (abstract).

d. Wherein said electroplating bath contains a sulfate ion in a concentration

of 0.0001 to 5.0 mol/L, as recited in claim 7.

JP '496 teaches that sulfuric acid adjusted the plating liquid to pH 3.2 (page 3, [0030]).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the electroplating bath described by JP '496 with wherein said electroplating bath contains a sulfate ion in a concentration of 0.0001 to 5.0 mol/L because the sulfate ion concentration is a result-effective variable and one skilled in the art has the skill to calculate the sulfate ion concentration that would have determined the success of the desired reaction to occur, e.g., pH, absent evidence to the contrary (MPEP § 2141.03 and § 2144.05(II)(B)).

Allowable Subject Matter

The following is a statement of reasons for the indication of allowable subject matter:

Claims 1 and 2 define over the prior art of record because the prior art does not teach or suggest a method for forming a high Re-content alloy film which contains Re at 98% or more by atomic composition, said method comprising the step of performing as presently claimed, esp., wherein the electroplating bath includes at least one organic acid selected from the group consisting of carboxylic acid, hydroxycarboxylic acid and amino acid, in a concentration of greater than 5.0 to 15.0 equivalent to the concentration of all of said metal ions.

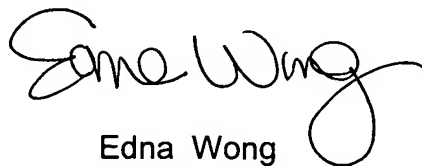
The prior art does not contain any language that teaches or suggests the above. *JP 9-302496* teaches at least one organic acid selected from the group consisting of carboxylic acid, hydroxycarboxylic acid and amino acid, in a concentration of 0.1 to 3 equivalent to the concentration of all of said metal ions (pages 2-3, [0019]). Applicants have shown in Fig. 1 that the content of Re significantly increases as organic acid/metal ions increases from 3 to 5 equivalents. A Re alloy film having a Re content of 98% or more by atomic composition is formed by adding into an electroplating bath an organic acid having at least one functional group selected from the group consisting of a hydroxyl group, a carbonyl group and an amino group, and controlling at a concentration of greater than 5.0 to 15.0 equivalents to the concentration of all of said metal ions. Therefore, a person skilled in the art would not have been motivated to adopt the above conditions, and a prima facie case of obviousness cannot be established.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edna Wong whose telephone number is (571) 272-1349. The examiner can normally be reached on Mon-Fri 7:30 am to 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

A handwritten signature in black ink, appearing to read "Edna Wong", with a stylized, flowing script.

Edna Wong
Primary Examiner
Art Unit 1753

EW
January 23, 2007